

Applicant: Julie Long; City of Bloomington
Representative: Steve Gurney; City of Bloomington
Project: Sediment Removal – Bush Lake Forebays and Autumn Chase Pond
Location: Bush Lake forebays near Amsden Road, Veness Road and Lindstrom Road; Autumn Chase East Pond – north of west 86th Street and south of West 84th Street cul-de-sac: Bloomington
Rule(s): 2,3,4,5,7 and 8
Reviewer(s): Bob Obermeyer, Barr Engineering Co.

General Background

The applicant proposes the removal of a total of 1,400 cubic yards of accumulated sediment at three forebays at the outlets of existing storm sewer outfalls discharging into Bush Lake. The storm sewer outfalls are from Amsden Road, Veness Road and Lindstrom Drive sewer systems discharging into the lake. These basins were constructed as part of roadway reconstruction project in 1984 and 1987.

The Autumn Chase east project is for maintenance work at an existing stormwater outfall, constructed in 1987, and the construction of a riprap lined drainage swale to direct runoff from the maintained outfall to the east to the inlet of an existing storm sewer. The redirection of the drainage will further minimize the potential of future erosion problems. The work proposed is above the established normal elevation of the Autumn Chase east basin (851.7 M.S.L.) but below the 100-year highwater elevation (860.0 M.S.L.). The Autumn Chase east basin is a historic wetland as determined by the city of Bloomington, the Local Governmental Unit (LGU) administering the requirements of the Wetland Conservation Act. No work within the basin (wetland) is proposed.

The proposed work at Bush Lake is below elevation 833.2 M.S.L., the ordinary highwater elevation (O.H.W.) of Bush Lake (47P) established by the Minnesota Department of Natural Resources (MDNR). The District's Sediment Removal Rule 8.0 applies to the project because the project includes removal of accumulated sediment and rip-rap installation at Bush Lake, a public waterbody

The District's Floodplain Management and Alterations Rule 2.2.1b states even though land altering activities are proposed below the 100-year frequency flood elevation of Bush Lake and Autumn Chase East basin, a permit under this rule is not required for the removal of accumulated sediment from a water basin. The drainage swale construction riparian to the Autumn Chase east basin will create an additional 175 cubic yards of flood storage within the basin.

The District's Stormwater Management Rule 4.0 and Erosion Control Rule 5.0 apply to the project because more than 50 cubic yards of material will be disturbed, Rules 4.2.1a and 5.2.1a, respectively. However, since the project does not propose to construct, disturb, and reconstruct any new and/or existing impervious area the requirements of the district stormwater rule (4.0) will not apply.

The District's Sediment Removal Rule 8.0 applies to the Bush Lake portion of the project because the project includes removal of accumulated sediment from the banks of a public waterbody. As previously stated, the Autumn Chase East basin is within a historic wetland as determined by the city of Bloomington, the Local Governmental Unit (LGU) administering the requirements of the Wetland Conservation Act. In addition, wetland areas riparian to Bush Lake above the lakes O.H.W. are also WCA regulated. The City has determined and approved a No-loss determination for the associated work at Bush Lake and the Autumn Chase east basin based on 8420.0415 Subp. E.

1. Permit Application dated December 14, 2022.
2. Project submittal received December 14, 2022.
3. E-mail correspondence from the DNR dated December 12, 2022, waiving authority for work associated with the proposed sediment removal from Bush Lake, as this activity will be authorized by under DNR General Permit #1997-6112 if permitted under the NMCWD rules.
4. Approved WCA No-loss determination dated December 19, 2022, submitted by the City of Bloomington, the LGU administering the requirements of WCA.

2.0 Floodplain Management and Drainage Alterations

Because the project will involve land-altering activities below the Atlas 14 100-year frequency flood elevation of Bush Lake, elevation 834.8 M.S.L. (as identified in the City Storm Water Management Plan) and 860.0 M.S.L. for the Autumn Chase east basin, the project must conform to the requirements of the District's Floodplain Management and Drainage Alterations Rule 2.0.

Proposed earth work and grading below the respective flood elevations, includes the removal of sediment and placement of riprap and granular filter material at the outfalls of existing storm sewer systems.

Under subsection 2.2.1a of the rule, the riprap installation is exempt from the requirements set forth by the District's Floodplain Management and Drainage Alterations Rule because:

- The riprap will be installed at the inlet and outlet of the pipe to provide an energy dissipation measure to reduce the erosive force of concentrated stormwater and prevent scour.
- The riprap design and materials are consistent with the standards in the District's Shoreline and Streambank Improvements Rule 7.0, as described below.

7.3.1 - the riprap is not for cosmetic purposes but for the dissipation of energy and preventing scour.

7.3.2- bioengineering alone is not sufficient to dissipate velocities, estimated to be as high as 6 feet/second, at the culvert downstream end.

7.3.3 – 4, 8, 12, and 29 tons of Class III riprap, size less than 30-inches in diameter, (Rule 7.3.3a) and 6 inches of granular filter material (Rule 7.3.3c) is to be installed at the culvert ends at Amsden, Veness, Lindstrom and Autumn Chase, respectively. The cross-section detail and plan view show the location and work proposed is to conform with the existing alignment of the wetland (Rule 7.3.3b). The work will remove wetland vegetation that is discussed in Rule 3 as a no-loss exemption for compliance with Rule 7.3.3d. The riprap is to be installed at the invert of the pipe. Rule 7.3.3e allows for the riprap to extend to no higher than two feet above the 100-year high water elevation, in compliance with subsection 7.3.3 criteria. The remaining sections of Rule 7.0 are not applicable to the project.

3.0 Wetlands Management

The District's Wetland Management Rule 3.0 applies to the project because land-disturbing activities are proposed within the wetland areas above the O.H.W. of Bush Lake and Amsden East basin. Proposed work within the wetlands includes the installation of riprap at stormwater pipe outlets. All wetland area disturbed or altered by the project will be restored to pre-project conditions. The city is the Local Government Unit (LGU) responsible for administering the requirements of the Wetland Conservation Act (WCA) in Bloomington.

Wetland type and boundary determinations were completed by the city. NMCWD is in agreement with the type and boundary determination. A WCA Notice of Decision dated December 19, 2022, has been issued approving the wetland no-loss determination for the proposed work within the wetland. Subsection 3.2.2a of the District's Rules indicates that the provisions of Rule 3.4 Wetland Buffers and Rule 3.5 Stormwater Treatment do not apply to wetlands that are disturbed by utility improvements or repairs that are the subject of a no-loss determination from the LGU. The project conforms to the requirements of Rule 3.0.

4.0 Stormwater Management

The district's requirements for erosion and sediment control apply to the project because more than 50 cubic yards of material will be disturbed, Rule 5.2.1a.

The erosion control plan prepared by the city includes installation of stabilized rock construction entrances, storm drain inlet protection, and floatation silt curtain in Wing Lake.

5.0 Erosion and Sediment Control

The contractor for the project, if different from the city of Bloomington maintenance staff, will need to designate a contact who will remain liable to the district for performance under the District's Erosion and Sediment Control Rule 5.0 from the time the permitted activities commence until vegetative cover is established, in accordance with subsection 5.4.1e. 8.0 Sediment Removal

8.0 Sediment Removal

The District's Sediment Removal Rule 8.0 applies to the project because the project includes removal of approximately 1,400 cubic yards of accumulated sediment within three forebays upstream and below the O.H.W of Bush Lake (Public Water #47P).

Rule 8.3 Criteria states, removal of accumulated sediment at stormwater outfalls may be permitted upon submittal of an application meeting the following criteria:

8.3.1 Removal of sediment must not alter the original alignment, slope or cross-section of the beds, banks, or shores of any public water.

The supporting materials demonstrate, and the NMCWD Engineer concurs, that approximately 1,400 cubic yards of sediment will be removed from within three forebays upstream of Bush Lake (Public Water #47P).

Accumulated material to be removed is located below the O.H.W. of Bush Lake within forebay (sedimentation) basins at the outlets of existing storm sewer systems and will not result in alteration of the alignment, slope, or cross-section of the lakebed or bank(s).

8.3.2 Any excavated materials storage or disposal sites must be identified and shown to be:

a) Not below the OHW of a public water, public water wetland or wetland subject to the Wetland Conservation Act

b) Not in the floodplain; or

c) Not subject to erosion or likely to cause redeposition of the sediment to an adjacent water body, storm water facility or storm sewer.

Excavated material will not be stored or disposed onsite. The plans note that excavated materials will be removed from the site and properly disposed at an approved landfill based on the testing of the material. The removed sediment will not be stockpiled, and/or disposed on-site, therefore will not be subject to erosion or likely to cause re-deposition of the sediment to Bush or storm sewer inlet(s).

8.3.3 Degradation or erosion of the banks or bed of the subject water body by entry of equipment must be avoided.

Wood chip pads will be constructed to provide access to the areas of sediment removal.

The erosion control plan submitted by the city includes installation of floating silt fence for in-water erosion control. Equipment used to excavate soil will be placed above the banks of the waterbodies.

8.3.4 Where determined necessary by the District to protect water quality, a flotation silt curtain shall be placed around the sediment removal site and maintained for the duration of the project.

Flotation silt curtain will be provided at the existing outfalls to Bush Lake.

8.3.5 No activity affecting the bed of a protected water maybe conducted between March 15 and June 15 on watercourses, or between April 1 and June 30 on all other public water bodies, to minimize impacts of fish spawning and migration.

The project schedule proposes work associated with the pipe outfall and sediment removal is begin around February 15, 2023. The work at Bush Lake must be completed by April 1, 2023, complying with the Rule 8.3.5 criteria.

11.0 Fees

Because the property owner is a public entity, no fees are charged.

Rules 2.0, 3.0, 4.0, 5.0, and 8.0

\$0

12.0 Financial Assurances

Because the property owner is a public entity, the district's financial assurance requirements do not apply.

Sureties for the project are:

\$0

Findings

1. The proposed work will take place within publicly owned property by the City.
2. The proposed project includes the information necessary, plan sheets and erosion control plan for review.
3. For the purposes of compliance with Minnesota State Work in Waters Rules (Minn. R. Ch. 6115), the DNR has waived jurisdiction over the work in the banks of the public water basin and public water wetland, and the applicant may proceed with the associated work under General Permit #1997-6112, so long as the applicant complies with the conditions of the general permit. Authorization by NMCWD for removal of accumulated sediment below the O.H.W. of Bush Lake under NMCWD's Sediment Removal Rule 8.0 represents state authorization of the work under the general permit, so long as the work proceeds in compliance with the conditions of the general permit.

Recommendation

Approval, contingent upon:

1. General Conditions.
2. The contractor for the project, if different from the city of Bloomington maintenance staff, will need to designate a contact who will remain liable to the district for performance under the District's Erosion and Sediment Control Rule 5.0 from the time the permitted activities commence until vegetative cover is established, in accordance with subsection 5.4.1e. 8.0 Sediment Removal.
3. The work at Bush Lake must be completed by April 1, 2023, for compliance with district rule 8.3.5.

CONSTRUCTION NOTES

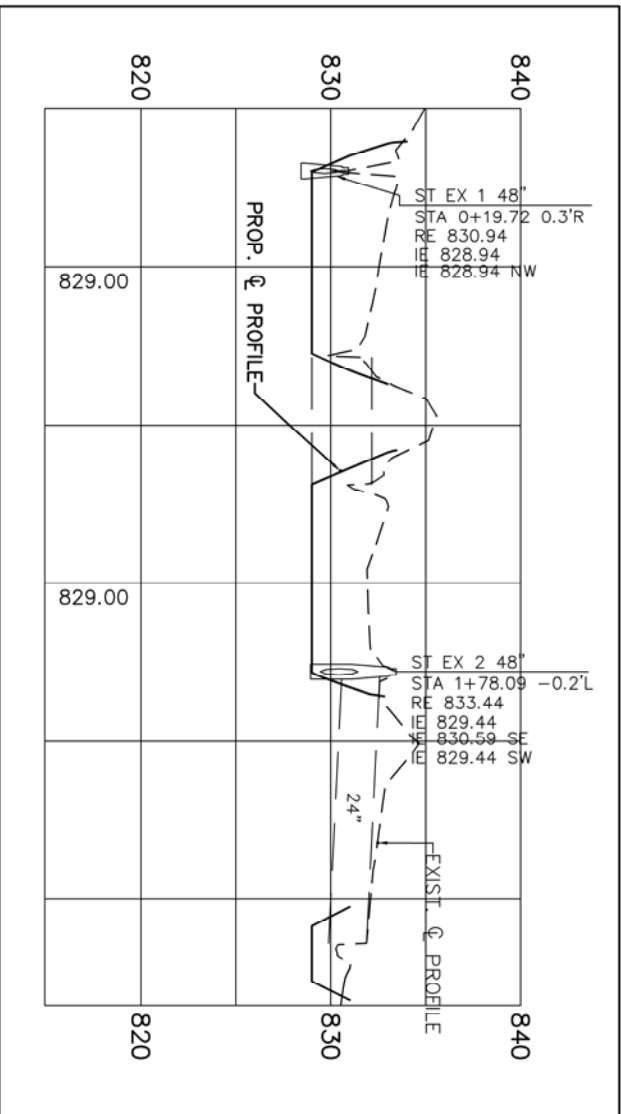
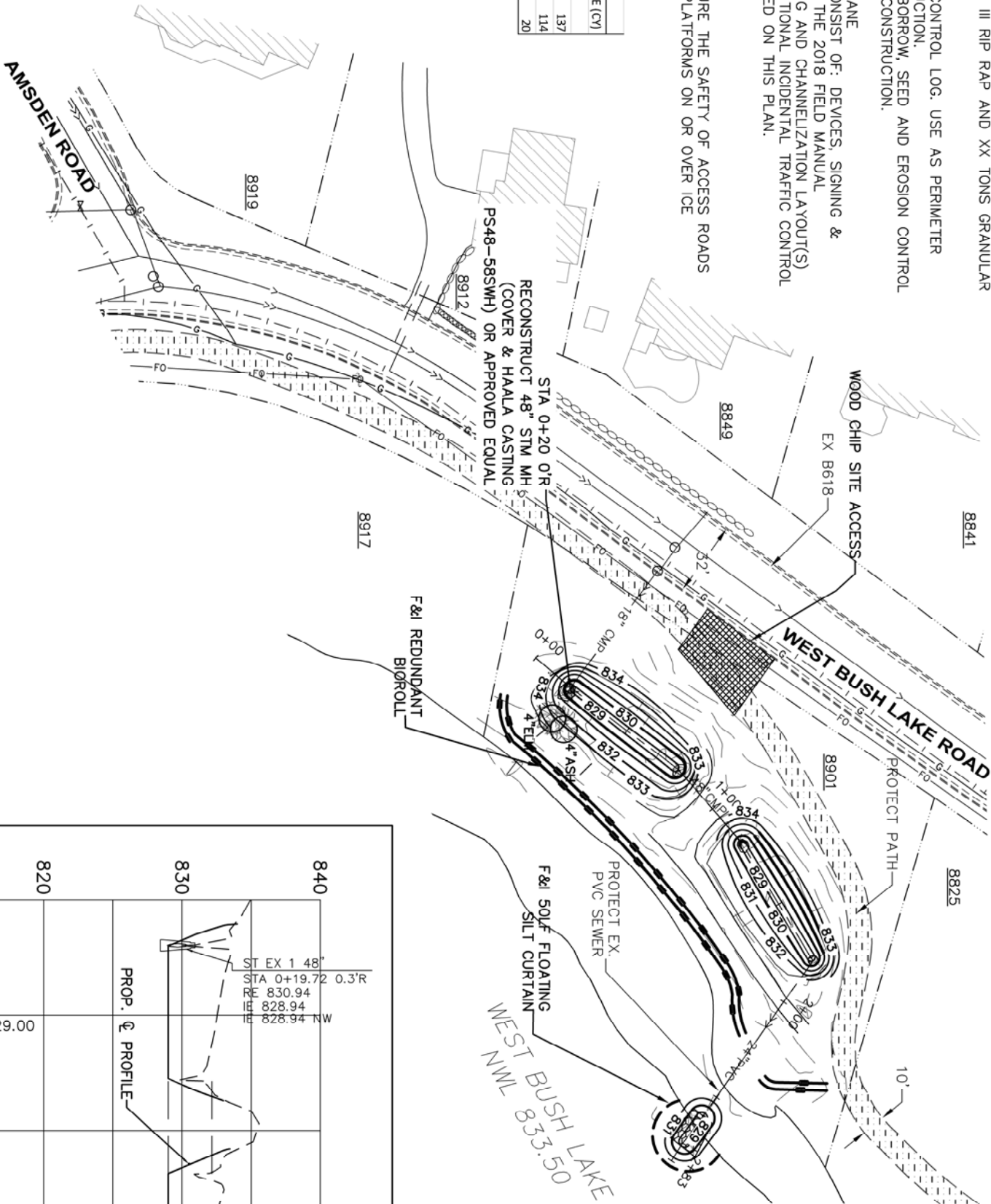
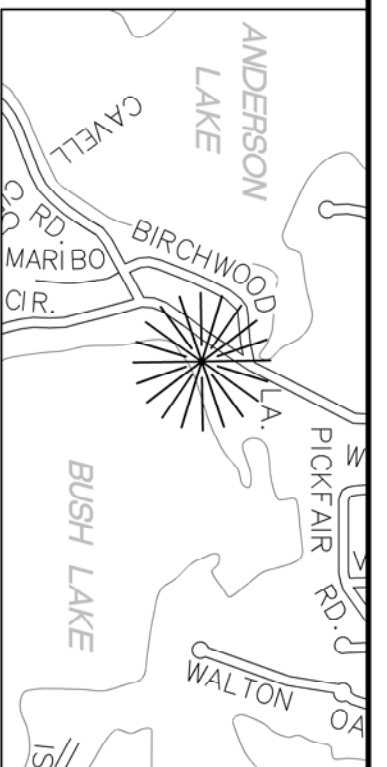
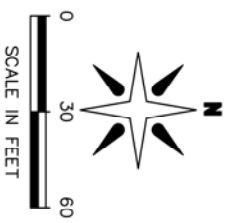
- * SITE ACCESS
- * FURNISH AND INSTALL WOODCHIP PAD OVER SITE ACCESS AND STAGING AREA
- * CONTRACTOR RESPONSIBLE FOR TRAIL PROTECTION AT ALL SITE ACCESS POINTS
- * TREE REMOVAL
 - * CLEAR AND GRUB TREES AS APPROVED. TREES TO BE REMOVED WILL BE MARKED PRIOR TO THE START OF CONSTRUCTION
 - * CUT STUMPS AS LOW TO THE GROUND AS POSSIBLE ON TREES THAT DO NOT REQUIRE GRUBBING.
 - * BRUSH OTHER VEGETATION AS APPROVED
- * DEWATERING
- * SEE SPECIAL PROVISIONS
- * REMOVE SEDIMENT AS SHOWN, TYPICAL SLOPES NOT TO EXCEED 2:1
- * SEDIMENT REMOVAL 271 CY, ALL EXCESS
- * SEE SPECIAL PROVISIONS
- * RIP RAP
- * FURNISH AND INSTALL XX TONS CLASS III RIP RAP AND XX TONS GRANULAR FILTER MATERIAL
- * LANDSCAPING & EROSION CONTROL
- * FURNISH & INSTALL 425LF SEDIMENT CONTROL LOG. USE AS PERIMETER CONTROL DURING AND AFTER CONSTRUCTION.
- * FURNISH AND INSTALL LOAM TOPSOIL BORROW, SEED AND EROSION CONTROL BLANKET OVER AREAS DISTURBED BY CONSTRUCTION.
- * TRAFFIC CONTROL
 - * MAINTAIN AT LEAST ONE 11' DRIVING LANE
 - * THE TRAFFIC CONTROL PLAN SHALL CONSIST OF: DEVICES, SIGNING & SPACING AS SHOWN IN LAYOUT 13 OF THE 2018 FIELD MANUAL
 - * THIS PLAN INDICATES GENERAL PHASING AND CHANNELIZATION LAYOUT(S) AND MAY NOT BE ALL INCLUSIVE. ADDITIONAL INCIDENTAL TRAFFIC CONTROL MAY BE NEEDED THAT IS NOT IDENTIFIED ON THIS PLAN.
 - * SUBMIT PLAN FOR PEDESTRIAN USAGE
 - * SEE SPECIAL PROVISIONS
- * SITE SAFETY
- * CONTRACTOR IS RESPONSIBLE TO ENSURE THE SAFETY OF ACCESS ROADS INCLUDING STAGING AREAS OR WORK PLATFORMS ON OR OVER ICE

| FOREBAY EXCAVATION AMSDEN | | | | |
|---------------------------|---------|----------|-----------|-------------|
| SITE | SF AREA | CUT (CY) | FILL (CY) | VOLUME (CY) |
| SOUTH | 2207 | 137 | 0.1 | 137 |
| NORTH | 1762 | 114 | 0.18 | 114 |
| EAST | 426 | 20 | 0.18 | 20 |

SITE XX

8901 WEST BUSH LAKE ROAD

| TREE REMOVAL SCHEDULE | |
|-----------------------|--|
| 4" ASH | |
| 4" ELM | |



REVISIONS

| DATE | DESCRIPTION | BY |
|------|-------------|----|
| | | |
| | | |



CITY OF BLOOMINGTON
MINNESOTA

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ENGINEERING DIVISION
PUBLIC WORKS DEPARTMENT
2022-902 POND AND MAINTENANCE PROJECT

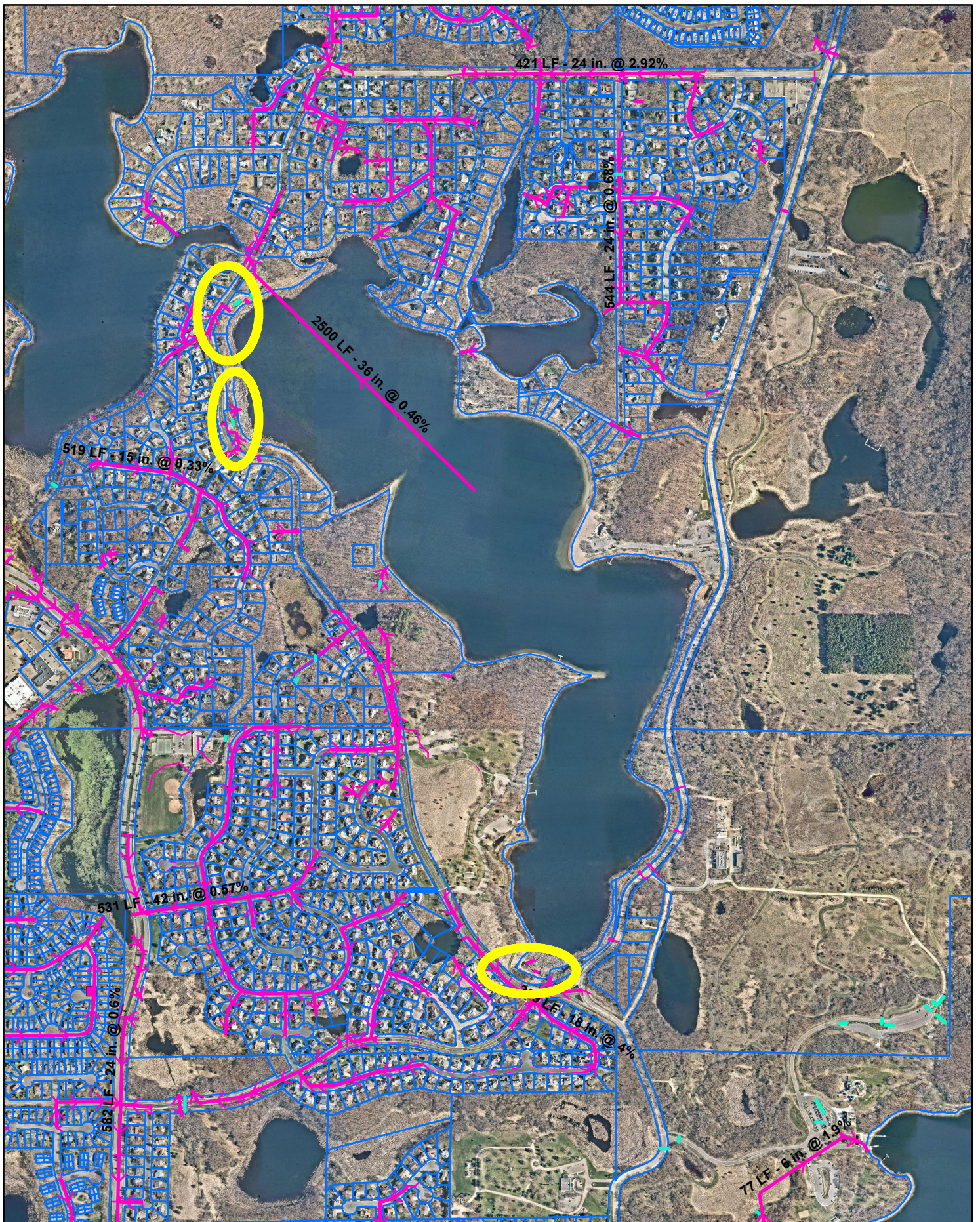
SITE XX

8901 WEST BUSH LAKE ROAD

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

40497 ####
Steven G. Gurney LIC. # DATE

DRAWN: DVH
CHECKED: SGG
APPROVED: SGG
SHEET: ####OF####



Bush Lake Forebays Sediment Removal

